

## CLAIMS

5 1. An implant (1) for insertion into and permanent anchorage in bone tissue, comprising an intraosseous anchoring structure (3) of a generally circular cross-section, said anchoring structure (3) comprising a first cylindrical section (11) of a first diameter and a second cylindrical section (13) of a second diameter, said second diameter being less than said first diameter, said  
10 first and second cylindrical sections (11, 13) each being provided with a screw thread profile, characterised in that said anchoring structure (3) comprises a tapered connecting section (15) provided between and interconnecting said first and second cylindrical sections (11,  
15 13).

2. An implant (1) as claimed in claim 1, wherein the implant is a fixture of an orthopaedic prosthesis(1).

3. An implant (1) as claimed in claim 2, wherein the implant is a femur fixture (1) of a hip-joint prosthesis.

20 4. An implant (1) as claimed in any one of the preceding claims, wherein said connecting section (15) has a frusto-conical shape.

5. An implant (1) as claimed in claim 4, wherein said connecting section (15) at one end has a base diameter essentially equal to said first diameter of said  
25 first cylindrical section (11), and at the other end has a top diameter essentially equal to said second diameter of said second cylindrical section (13).

6. An implant (1) as claimed in claim 4 or 5,  
30 wherein said connecting section (15) has a flank angle in the range of 10°-50°, preferably in the range of 20°-40°.

7. An implant (1) as claimed in any one of the preceding claims, wherein said connecting section (15) is at least partly provided with a roughened surface.

35 8. An implant (1) as claimed in claim 7, wherein said roughened surface is at least partly a blasted surface, preferably a grit-blasted surface.

9. An implant (1) as claimed in claim 7 or 8, wherein said roughened surface is at least partly provided with a circumferentially oriented roughness.

10. An implant (1) as claimed in claim 9, wherein  
5 said circumferentially oriented roughness is in the form of circumferential beads.

11. An implant (1) as claimed in claim 10, wherein said circumferential beads has a height less than that of the screw thread profiles of said first and second cylindrical sections (11, 13).  
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12. An implant (1) as claimed in claim 11, wherein the height of said circumferential beads is no greater than 0.3 mm, preferably in the range of 0.1-0.25 mm, and even more preferably approximately 0.2 mm.

15 13. An implant (1) as claimed in claim 9, wherein said circumferentially oriented roughness is in the shape of a screw thread profile.

14. An implant (1) as claimed in claim 13, wherein the screw thread profile of said connecting section (15)  
20 differs from the screw thread profiles of said first and second cylindrical sections (11, 13).

15. An implant (1) as claimed in claim 14, wherein the screw thread profile of said connecting section (15) has a height less than that of the screw thread profile  
25 of said first and second cylindrical sections (11, 13).

16. An implant (1) as claimed in claim 15, wherein the screw thread profile of said connecting section (15) is in the form of microthreads.

17. An implant (1) as claimed in claim 16, wherein  
30 the height of said microthreads is no greater than 0.3 mm, preferably in the range of 0.1-0.25 mm, and even more preferably approximately 0.2 mm.

18. An implant (1) as claimed in claim 13, wherein the heights of the screw thread profiles of said first  
35 and second cylindrical sections (11, 13) and said connecting section (15) are essentially the same.

19. An implant (1) as claimed in any one of the preceding claims, wherein said connecting section is at least partly provided with a smooth surface.

20. An implant (1) as claimed in any one of claims 1-7, wherein the entire surface of said connecting section is smooth.

21. An implant (1) as claimed in any one of the preceding claims, wherein one or more self-tapping cutting recesses (14) are provided at least in part on said connecting section (15).

22. An implant (1) as claimed in any one of the preceding claims, wherein said implant (1) comprises a head section (5), and wherein said anchoring structure (3) comprises a tapered proximal section (18) being provided between and interconnecting said first cylindrical section (11) and said head section (5).

23. An implant (1) as claimed in claim 22, wherein said proximal section (18) has a frusto-conical shape.

24. An implant (1) as claimed in claim 23, wherein said proximal section (18) at the end interfacing said first cylindrical section (11) has a diameter essentially equal to said first diameter of said first cylindrical section (11).

25. An implant (1) as claimed in claim 23 or 24, wherein said proximal section (18) has a flank angle in the range of 8°-15°, preferably in the range of 10°-13°, and even more preferably approximately 12°.

26. An implant (1) as claimed in any one of claims 22-25, wherein said proximal section is at least partly provided with a circumferentially oriented roughness.

27. An implant (1) as claimed in claim 26, wherein said circumferentially oriented roughness is in the form of circumferential beads.

28. An implant (1) as claimed in claim 26, wherein said circumferentially oriented roughness is in the form of a screw thread profile.

29. An implant (1) as claimed in claim 27 or 28, wherein the height of said circumferentially oriented roughness is no greater than 0.3 mm, preferably in the range of 0.1-0.25 mm, and even more preferably approximately 0.2 mm.

30. An implant as claimed in any one of claims 22-29, wherein said head section (5) comprises a collar section (20) having a distal surface (21) abutting said anchoring structure (3).

31. An implant (1) as claimed in claim 30, wherein said distal surface (21) is inclined inwardly towards the body of the collar section (20).

32. An implant (1) as claimed in claim 31, wherein said distal surface (21) is inclined inwardly at an inclination angle within the range of 10°-20°, preferably approximately 15°.

33. An implant (1) as claimed in claim 30, wherein said distal surface (21) is concave.

34. An implant (1) as claimed in any one of claims 30-33, wherein said distal surface (21) is provided with radially spaced circular beads (22).

35. An implant (1) as claimed in claim 34, wherein said circular beads have a height in the range of 0.1-0.5 mm, preferably in the range of 0.2-0.4 mm, and even more preferably approximately 0.3 mm.